



(Left) Professor Helene Finger hopes to see more young women enter the engineering field. (Right) The professor and her students, from left, Helene Finger, Betsy Sale, Danielle Norris and Hayley Musgrove.

CLOSING THE GAP

BY SUSAN MCDONALD

COLLEGES AND UNIVERSITIES across the nation are having trouble recruiting women into engineering programs, and Cal Poly is no exception.

Fall 2005 enrollment in the College of Engineering tallied 642 female students – barely 14 percent of the college's total population of 4,589. Of 5,310 freshman applicants, just 737, or 13.9 percent, were women. And while more than half the female applicants were offered admission, just 114 enrolled.

The picture isn't any rosier nationwide. Women make up less than 10 percent of the engineering work force and just 20 percent of the undergraduate engineering student population.

The numbers worry educators and industry leaders.

"We have an equity and work force diversity gap, and we need to make this career opportunity attractive and available to all," said Unny Menon, associate dean of Cal Poly's College of Engineering.

Menon and others, like Cal Poly engineering Professor Helene Finger and Sun Microsystems Vice President **Kathleen Holmgren (IE'80)**, are working hard to turn the tide.

They believe women play a vital role in the engineering industry, but find girls are turned off to math and science at an early age. "Young girls see computer science, for example, as a very geeky profession," Finger said. "The stereotype is so strong, they just don't see themselves going there."

Women tend to choose "nurturing" careers, she said. "We need to get out the message that engineering is a 'helping' profession. If we don't, we'll stop making the advances we need to make. Engineering is all about helping people make their lives better and safer."

Finger is the women's engineering program director and advisor for the Cal Poly chapter of the Society of Women Engineers. At nearly 500 members strong, the Cal Poly organization is the largest student section in the nation and has won the national SWE title four years in a row.

Cal Poly SWE reaches out to girls through programs like Build-An-Engineer Day, where members bring middle school students to campus for projects and mini-labs, such as using nitrogen to make ice cream.

Some students have gotten the message. "I think the one thing

that can hold a woman back is her unwillingness to take risks and to challenge herself," said Betsy Sale, a fifth-year civil engineering student. "I think girls are less likely to pursue engineering in college because they are not encouraged to push themselves in math and science. Engineering and other 'hard sciences' take more of an analytical mindset, one which girls often suppress."

Engineering major Hayley Musgrove has learned to deal with her minority status as a female during her four years at Cal Poly. "The most challenging thing for me is when I'm working on a group project with all males. It might take them a few meetings to respect my ideas or opinions. I've learned to be confident in my ideas and what I have to say. They learn to respect me."

Young women need role models – someone to show them why careers in engineering are fun and interesting, said alumna Holmgren, a SWE member.

Holmgren has mentored girls over the years, beginning with a visit to a kindergarten class early on where she demonstrated how Hershey Kisses are made and how they are wrapped in foil with the tiny paper tag sticking out. The youngsters loved it, she said, especially when they got to sample the finished product.

Working in a traditionally male profession – and ascending to a seat in the executive boardroom – has had its challenges, Holmgren said. But, persistence has paid off. "I've always loved to figure out how things work. For me, engineering is the place for that. And Cal Poly was the perfect place for me to go."

For her first job, she was hired as a management consultant for a family-owned flashlight company that needed help with its production planning. The owner was not pleased when Holmgren walked in for the job. "He was expecting gray hair and a three-piece suit. He said he had a daughter older than me."

Fortunately, because of her Cal Poly hands-on training, she had been out on the factory floor, sizing up the operation. "After 15 minutes of sharing some of my ideas, the man softened. I saw the doubt fade away."

Today, she helps other women by mentoring at Sun, and she's had some recruitment success within her own family. Daughter Allison is an engineering freshman at Cal Poly, and two younger daughters are waiting in the wings. "I'm doing my part," Holmgren laughed. □

